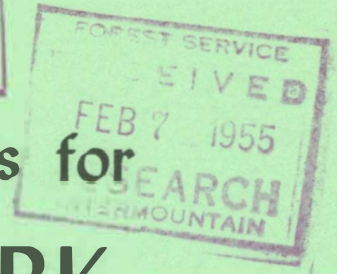


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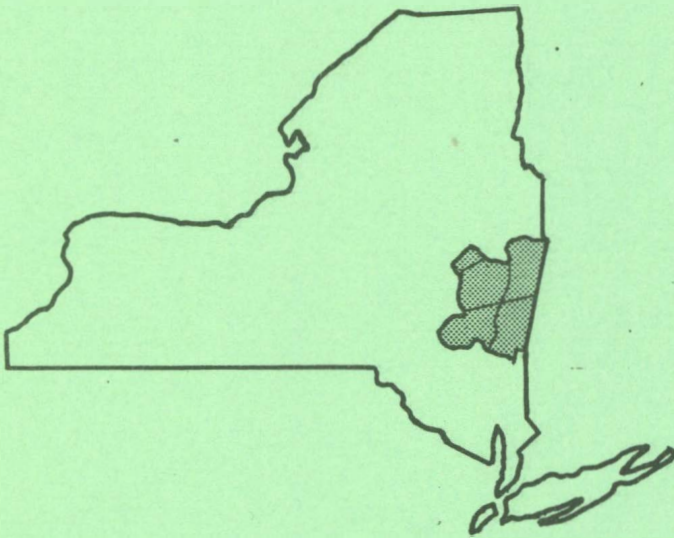
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Forest Statistics for

NEW YORK

Forest District No. 12



Forest Statistics Series:

New York No. 12

Northeastern Forest Experiment Station

Upper Darby, Pennsylvania
Ralph W. Marquis, Director

1954

United States Department of Agriculture • Forest Service

FOREWORD

This is the twelfth in a series of reports about forest areas and timber volumes in the State of New York. These reports are products of the forest survey of the Northeast, carried on by the Northeastern Forest Experiment Station as part of the nationwide forest survey being made by the Forest Service, U. S. Department of Agriculture.

A similar report has been prepared for each of the other forest districts in the State of New York. The primary purposes of these reports is to provide basic forest statistics for the administrative use of the New York Department of Conservation.

The New York Department of Conservation aided the Northeastern Station greatly in the forest survey of the State. The Department not only provided the aerial photographs used in the survey, but also cooperated in many other phases of the work.

Field work in Forest District No. 12 was supervised by Harry W. Camp, Jr. The statistical procedures for obtaining field-inventory data were developed by C. Allen Bickford. Computations were made under the supervision of Roland H. Ferguson.

Ralph W. Marquis

Ralph W. Marquis
Director

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FOREST STATISTICS FOR
NEW YORK FOREST DISTRICT NO. 12

Prepared by

Division of Forest Economics

*Northeastern Forest Experiment Station
Forest Service, U.S. Dept. Agriculture*

GENERAL

Forest District No. 12 consists of five counties: Albany, Columbia, Greene, Rensselaer, and Schenectady. About 84 percent of the forest area drains into the Hudson River. And the remainder into the Mohawk, Housatonic, and Delaware Rivers. Elevations range from less than 20 feet along the Hudson River to more than 4,000 feet in southern Greene County.

Many types of agricultural activities are important in the District. Orchard and vineyard farming has long been one of the mainstays of the Hudson Valley. Dairy farming is of considerable importance; so is the production of grain, hay, and berries.

There has been heavy recreational development in the Catskill Mountain portion of the District, and it seems likely that this trend will continue.

Forest Area

The land area of Forest District No. 12 totals about 1-3/4 million acres. Thirty-seven percent of this total acreage is commercial forest land. An additional 4 percent

is forested but is classed as noncommercial. Most of the 69,000 acres of noncommercial forest land is productive but is reserved from cutting, being located in the State Forest Preserve¹ and State parks.² Only 800 acres are classified as incapable of producing merchantable stands of timber.

The most rugged and the most extensively forested county is Greene County. There 44 percent of the land area is in commercial forest, and an additional 15 percent is in the State Forest Preserve. Schenectady is the least wooded county; only 23 percent is in commercial forest, and none in parks or preserves.

Ownership

Nearly two-thirds of the commercial forest land is held by nonfarm private owners, while farmers hold less than one-third. Three percent is in public ownership, held largely by the State of New York. There are 12,000 acres in Game Management Areas and 7,000 acres in State Forests.³ Municipalities own 2,500 acres.

Forest Types

Many forest types are represented in Forest District No. 12. Sugar maple-beech-yellow birch is predominant, occupying 30 percent of the commercial forest area. Aspen covers 11 percent, followed by white pine and red oak with 9 percent each. Oak-white pine and other oak types account for 15 percent of the commercial forest land. Another 14 percent is made up of white-pine hardwood and other softwood types including hemlock, spruce-fir, pitch pine, and spruce-fir hardwood. Ash-elm-maple, river birch-sycamore, paper birch, and other minor hardwood types occupy the remaining commercial forest area.

Forest Stands

Sawtimber stands occupy 44 percent of the commercial forest land, poletimber stands 31 percent, seedling-and-

¹THE STATE FOREST PRESERVE COMPRISES LANDS OWNED BY THE STATE IN THE 4 FOREST PRESERVE COUNTIES OF THE CATSKILLS AS DEFINED BY LAW.

²RECREATIONAL AREAS OUTSIDE THE CATSKILL PARK.

³OUTSIDE THE LIMITS OF THE CATSKILL PARK AND NOT SUBJECT TO THE CONSTITUTIONAL PROHIBITION AGAINST CUTTING, WHICH APPLIES TO THE STATE FOREST PRESERVE LANDS.

sapling stands and other areas 25 percent. While this appears to be a satisfactory stand-size class distribution, a large portion of the sawtimber and poletimber stands are understocked. Only 26 percent of the sawtimber stands have a stocking of at least 5,000 board feet per acre. The remaining 74 percent average less than 3,000 board feet. Approximately 42 percent of the poletimber stands have a stocking of 600 cubic feet or more per acre. The other 58 percent average 360 cubic feet per acre.

There are 126,000 acres with a satisfactory stocking of seedlings and saplings and 32,000 acres of poorly stocked seedling-and-sapling stands in the District.

Timber Volume

The commercial forests in District No. 12 contain just under $1\frac{1}{4}$ billion board feet of live sawtimber (log scale, International $\frac{1}{4}$ -inch rule). Slightly more than half (54 percent) of this volume is in hardwood species. However, white pine is the species with the greatest individual volume, making up nearly a fourth of the total. Red oak is second with 14 percent, and hemlock third with 13 percent. Spruce and other softwoods account for 9, sugar maple 8, and elm 5 percent of the volume. The remainder is made up of many hardwood species.

The entire growing stock amounts to 531 million cubic feet. This volume is divided nearly evenly between sawtimber trees and poletimber trees.

The total cubic volume is equivalent to slightly more than $6\frac{1}{2}$ million standard cords. More than 80 percent of this volume is in trees less than 15 inches d.b.h. (diameter breast high).

NEW YORK FOREST DISTRICT NO. 12

Table 1.--Land area by major classes, 1950

Class of land ¹	Area	
	<u>Acres</u>	<u>Percent</u>
Forest land:		
Commercial	644,400	37
Noncommercial ²	69,700	4
All forest land	714,100	41
Nonforest land	1,014,500	59
All land ³	1,728,600	100

¹See Appendix for definitions.

²Includes the net acreage of forest land in the State Forest Preserve, 6,000 acres in State Parks, and 800 acres of nonproductive forest land. Gross area of the State Forest Preserve is 62,633.10 acres. All State ownership figures are as of September 30, 1952.

³Census of Agriculture, 1950. Water areas of 1 to 40 acres are included in the estimate of nonforest acreage.

NEW YORK FOREST DISTRICT ON. 12

Table 2.--Land area and commercial forest-
land area by county, 1950

County	Land area	Commercial forest- land area	
	<u>Acres</u>	<u>Acres</u>	<u>Percent</u>
Albany	339,800	93,900	28
Columbia	411,500	152,700	37
Greene	417,900	183,300	44
Rensselaer	425,600	184,300	43
Schenectady	133,800	30,200	23
All	1,728,600	644,400	37

NEW YORK FOREST DISTRICT NO. 12

Table 3.--Commercial forest-land area
by ownership, 1950

Ownership class	Acreage held	
	<u>Acres</u>	<u>Percent</u>
Private:		
Farm forest land ¹	207,200	32
Other private	415,800	65
Total private	623,000	97
Public:		
State ²	19,200	3
Municipal	2,200	(3/)
Total public	21,400	3
All ownerships	644,400	100

¹Census of Agriculture, 1950.

²Includes commercial forest land administered by the New York State Conservation Department as State Forests and Game Management Areas, amounting to 7,379.89 and 12,186.51 acres respectively. All State ownership figures are as of September 30, 1952.

³Less than 1 percent.

NEW YORK FOREST DISTRICT NO. 12

Table 4.--Commercial forest-land area
by forest type, 1950

Forest type	Area	
	<u>Acres</u>	<u>Percent</u>
White pine	60,900	9
White pine-hardwood	20,700	3
Hemlock	35,900	6
Spruce-fir	21,000	3
Other softwood types	12,900	2
Sugar maple-beech-yellow birch	191,900	30
Red oak	59,900	9
Chestnut oak	50,400	8
Oak-white pine	23,000	4
White oak	20,600	3
Aspen	68,900	11
Ash-elm-maple	40,600	6
River birch-sycamore	13,600	2
Paper birch	10,500	2
Other hardwood types	13,600	2
All types	644,400	100

NEW YORK FOREST DISTRICT NO. 12

Table 5.--Commercial forest-land area by forest-type group
and stand-size class, 1950

Forest-type group	Saw- timber stands	Pole- timber stands	Seedling-and- sapling stands and other areas	Total area
	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>
Softwood types	102,500	28,200	20,700	151,400
Sugar maple-beech- yellow birch	80,200	82,600	29,100	191,900
Oak types	75,600	50,900	27,400	153,900
Other hardwood types	25,100	41,200	80,900	147,200
All types	283,400	202,900	158,100	644,400
Percent	44	31	25	100

NEW YORK FOREST DISTRICT NO. 12

Table 6.--Commercial forest-land area by stand-size class and watershed, 1950

Stand-size class	Watershed		Total
	Hudson River	Other rivers ¹	
	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>
Sawtimber stands	194,700	88,700	283,400
Poletimber stands	169,800	33,100	202,900
Other	137,000	21,100	158,100
Total	501,500	142,900	644,400
Percent	78	22	100

¹Includes the Mohawk River (110,000 acres), the Housatonic River (25,200 acres), and the Delaware River (7,700 acres).

NEW YORK FOREST DISTRICT NO. 12

Table 7.--Net volume of live timber on commercial
forest land by species, 1950

Species	Growing stock ¹		Saw- timber ²
	<u>Thousand cu.ft.</u>	<u>Equivalent in cords</u>	<u>Thousand bd.ft.</u>
White pine	91,500	1,143,800	286,300
Hemlock	54,200	677,500	160,600
Spruce and other softwoods	35,200	440,000	113,500
All softwoods	180,900	2,261,300	560,400
Red oak	64,800	810,000	166,700
Sugar maple	48,000	600,000	91,300
Elm	23,200	290,000	62,100
Ash	19,300	241,200	47,600
Basswood	16,700	208,800	45,300
Red maple	37,300	466,300	45,000
Beech	15,500	193,700	33,500
White oak	16,000	200,000	32,900
Chestnut oak	32,900	411,200	26,000
Yellow-poplar	4,700	58,800	21,700
Hickory	16,900	211,200	21,500
Yellow birch	12,200	152,500	17,000
Black locust	8,300	103,800	14,700
Paper birch	18,600	232,500	12,100
Other hardwoods	16,000	200,000	11,200
All hardwoods	350,400	4,380,000	648,600
All species ³	531,300	6,641,300	1,209,000

¹Includes sawtimber. Cord equivalent in rough stand-
ard cords is assumed to average 80 cubic feet of peeled
wood.

²Log scale, International $\frac{1}{4}$ -inch rule.

³Excludes the net volume of cull trees--9,400,000
cubic feet.

NEW YORK FOREST DISTRICT NO. 12

Table 8.--Net volume of live timber on commercial
forest land by diameter class, 1950

Diameter class ¹ (inches at breast height)	Growing stock	Saw- timber
	<u>Thousand cu.ft.</u>	<u>Thousand bd.ft.</u>
Softwoods:		
6	26,600	---
8	26,900	---
10	36,200	136,600
12	30,400	133,200
14	27,300	125,100
16	17,900	86,500
18 +	15,600	79,000
All softwoods	180,900	560,400
Hardwoods:		
6	56,800	---
8	70,600	---
10	87,300	---
12	50,100	210,000
14	34,400	166,600
16	21,900	109,400
18	10,600	56,100
20	6,000	33,600
22	4,700	26,300
24 +	8,000	46,600
All hardwoods	350,400	648,600
Total	531,300	1,209,000

¹The midpoint of each 2-inch diameter class is indicated.

NEW YORK FOREST DISTRICT NO. 12

Table 9.--Net volume of live timber on commercial forest
land by forest type, 1950

Forest type	Growing stock		Saw- timber
	<u>Thousand cu.ft.</u>	<u>Equivalent in cords</u>	<u>Thousand bd.ft.</u>
White pine	86,300	1,078,800	205,200
White pine- hardwood	33,400	417,500	60,700
Hemlock	65,300	816,300	170,200
Spruce-fir	24,100	301,200	90,500
Other softwood types	24,500	306,200	89,300
Sugar maple-beech- yellow birch	116,800	1,460,000	258,700
Red oak	51,300	641,300	86,400
White oak	13,300	166,200	45,900
Oak-white pine	17,400	217,500	45,100
Chestnut oak	40,600	507,500	38,800
Ash-elm-maple	28,700	358,800	54,200
Other hardwood types	29,600	370,000	64,000
All types	531,300	6,641,300	1,209,000

NEW YORK FOREST DISTRICT NO. 12

Table 10.---Average net volume of live timber per acre
of commercial forest land, by
stand-size class, 1950

Stand-size class (and acreage of each class)	Growing stock	Saw- timber
	<u>Cubic feet</u>	<u>Board feet</u>
Sawtimber stands:		
More than 5,000 bd.ft. per acre (74,500 acres)	1,970	6,880
1,500 to 5,000 bd.ft. per acre (208,900 acres)	1,180	2,820
Poletimber stands:		
More than 600 cu.ft. per acre (85,000 acres)	950	890
200 to 600 cu.ft. per acre (117,900 acres)	360	100
Other ¹ (158,100 acres)	90	130
Average, all classes ² (644,400 acres)	820	1,880

¹Includes seedling-and-sapling stands and non-stocked areas.

²Hardwoods constitute 54 percent of the total board-foot volume or 66 percent of the total cubic-foot volume in all stand-size classes. The average cubic volume in all stand-size classes is equivalent to 10 cords per acre.

A P P E N D I X

DEFINITIONS OF TERMS

Forest Areas

Forest-land area.--Includes (a) lands that are at least 10 percent stocked by trees of any size and capable of producing timber or other wood products, or of exerting influence on the climate or on the water regime; (b) land from which the trees described in (a) have been removed to less than 10 percent stocking and which has not been developed for other use; and (c) afforested areas. (Forest tracts of less than 1 acre, isolated strips of timber less than 120 feet wide, and abandoned fields and pastures not yet 10 percent stocked are excluded.)

Commercial forest-land area.--Forest land that is (a) producing, or physically capable of producing, usable crops of wood (usually sawtimber), (b) economically available now or prospectively, and (c) not withdrawn from timber utilization.

Noncommercial forest-land area.--Forest land (a) withdrawn from timber utilization through statute, ordinance, or administrative order but which otherwise qualifies as commercial forest land, and (b) incapable of yielding usable wood products (usually sawtimber) because of adverse site conditions.

Forest Types

Forest types are classified according to the species or species group that accounts for the major portion of the stand in terms of cubic feet in sawtimber and poletimber stands, or the number of stems in seedling-and-sapling stands.

Stand-Size Classes

Sawtimber stands.--Stands with sawtimber trees having a minimum net volume per acre of 1,500 board feet, International $\frac{1}{4}$ -inch rule.

Poletimber stands.--Stands failing to meet the sawtimber stand specification, but at least 10 percent stocked with poletimber and larger (5.0 inches and larger) trees, and with at least half the minimum stocking in poletimber trees. (Poletimber stands carry at least 200 cubic feet per acre.)

Seedling-and-sapling stands.--Stands not qualifying as either sawtimber or poletimber stands, but having at least 10 percent stocking of trees of commercial species and with at least half the minimum stocking in seedling-and-sapling trees.

Other areas.--Forest-land areas not qualifying as sawtimber, poletimber, or seedling-and-sapling stands. (Includes nonstocked areas.)

Tree Classes

Sawtimber trees.--Trees of commercial species that contain at least one merchantable sawlog as defined by regional practice and that are of the following minimum diameters at breast height (d.b.h.): Softwoods 9.0 inches and hardwoods 11.0 inches. (All butt sawlogs are considered merchantable. Where the butt is defective, upper sawlogs are considered merchantable if they account--in terms of aggregate net volume--for 50 percent or more of the gross volume below the top of the uppermost sawlog. Softwood sawlogs are at least 6.0 inches in diameter inside bark at small end; 8 to 16 feet in length; sound and straight enough to be manufactured into standard lumber. The smaller logs are generally free of surface defects other than small tight knots. Hardwood sawlogs are at least 8.0 inches in diameter inside bark at small end; 8 to 16 feet in length; suitable for sawing into standard lumber, construction timbers, or ties.)

Poletimber trees.--Trees 5.0 inches d.b.h. and larger of commercial species that do not meet the specifications for sawtimber trees but do meet regional specifications of species, soundness, and freedom from defect. (These are the trees that are straight and clear enough to make sawtimber trees eventually.)

Seedling-and-sapling trees.--Trees of commercial species less than 5.0 inches in diameter at breast height.

Cull trees.--Live trees of sawtimber or poletimber size that are unmerchantable for sawlogs now or prospectively because of defect, rot, or species.

Timber Volume

Growing stock.--Net volume, in cubic feet, of live sawtimber trees and live poletimber trees from stump to a minimum 4.0-inch top (of central stem) inside bark.

This volume is also given in rough standard cords (bark included). Cord volume is derived from growing stock by applying a factor of 80 cubic feet per cord.

Live sawtimber volume.--Net volume in board feet, International $\frac{1}{4}$ -inch rule, of live sawtimber trees.

FOREST - SURVEY METHODS

These forest statistics are based on information gathered from aerial photographs and from sample plots examined on the ground.

First, photo-interpretation plots were marked off on the aerial photographs. These plots were distributed uniformly by mechanical means over photographs of the entire district. Trained photo-interpreters then classified each photo-plot as either forest or nonforest. Forest plots were classified further according to stand-size and forest type.

Field crews inspected some of the photo-plots on the ground. Enough plots were selected at random so as to attain a specified level of statistical accuracy. Species and volume data were collected on these ground plots; and the photo classification of stand size and forest type was verified or--if necessary--changed.

The survey was designed for maximum efficiency in estimating total cubic volume to meet the national standards of accuracy.

ACCURACY OF THE ESTIMATES

The estimates in this report may contain two kinds of error. First, photo-interpreters may make mistakes of judgment and fieldmen may make mistakes in measuring or record-

ing. There is no practical way of finding out just how often such errors occur. But they are kept to a minimum by closely checking all phases of the work.

The second kind of error is associated with sampling procedures. The size of this sampling error can be measured. In Forest District No. 12 the probabilities are 2 out of 3 that the actual forest area is within ± 3.0 percent of the estimated forest area, that the actual cubic-foot volume is within ± 6.2 percent of the estimated cubic-foot volume, and that the actual board-foot volume is within ± 10.6 percent of the estimated board-foot volume. This does not include any mistakes in measurement or classification.

These percentages show that the area estimates are more accurate than the volume estimates, and that the cubic-foot estimates are more accurate than the board-foot estimates.

In each of the tables, the total figures are more accurate than the subtotals. The subtotals are more accurate than any of the individual figures. Figures that are small in relation to totals are subject to larger sampling errors.

SPECIES TALLIED

The various commercial tree species tallied in New York Forest District No. 12 are listed below. Approved common names⁴ are shown in parentheses if these differ from the brief name used in the tables. Other tree species may occur in the area, but unless they were tallied on the field plots they were not included in the following list.

Softwoods

White pine (Eastern white pine)	- <u>Pinus strobus</u>
(Red pine)	- <u>Pinus resinosa</u>
Hemlock (Eastern hemlock)	- <u>Tsuga canadensis</u>
Spruce (Red spruce)	- <u>Picea rubens</u>
Other softwoods	
(Pitch pine)	- <u>Pinus rigida</u>

⁴LITTLE, ELBERT L. JR. CHECK LIST OF NATIVE AND NATURALIZED TREES OF THE UNITED STATES (INCLUDING ALASKA). U.S. DEPT. AGR. AGR. HANDB. 41. 472 PP. 1953.

Hardwoods

Red oak (Northern red oak)	- <u>Quercus rubra</u>
(Black oak)	- <u>Quercus velutina</u>
(Scarlet oak)	- <u>Quercus coccinea</u>
Sugar maple	- <u>Acer saccharum</u>
Elm	- <u>Ulmus species</u>
Ash	- <u>Fraxinus species</u>
Basswood (American basswood)	- <u>Tilia americana</u>
Red maple	- <u>Acer rubrum</u>
Beech (American beech)	- <u>Fagus grandifolia</u>
White oak	- <u>Quercus alba</u>
Chestnut oak	- <u>Quercus prinus</u>
Yellow-poplar	- <u>Liriodendron tulipifera</u>
Hickory	- <u>Carya species</u>
Yellow birch (Yellow birch)	- <u>Betula alleghaniensis</u>
(Sweet birch)	- <u>Betula lenta</u>
Black locust	- <u>Robinia pseudoacacia</u>
Paper birch	- <u>Betula papyrifera</u>
Other hardwoods	
(Black cherry)	- <u>Prunus serotina</u>
(Bigtooth aspen)	- <u>Populus grandidentata</u>
(Quaking aspen)	- <u>Populus tremuloides</u>

